Background Data: Byron Airport

6

6

Background Data: Byron Airport

INTRODUCTION

This chapter documents the background data and assumptions on which the Byron Airport compatibility criteria set forth in Chapter 4 are based. A brief discussion, together with tabular data and maps, is included for each of the following topics:

- **Airport Features**
  - Airport Features Summary (Exhibit 6A)
  - Airport Layout Diagram (Exhibit 6B)

- **Airport Activity**
  - Airport Activity Data (Exhibit 6C)

- **Noise Impacts**
  - Current Noise Contours (Exhibits 6D)
  - Projected Noise Contours (Exhibits 6E and F)

- **Airport Environs**
  - Airport Environs Summary (Exhibit 6G)
  - Existing General Plan Land Use Designations (Exhibit 6H)
  - Proposed Byron Area Land Use Plan (Exhibit 6I)

AIRPORT FEATURES

The present Byron Airport opened for flight in 1994. This totally new, county-owned facility replaced a small, privately owned, public-use airport which had occupied the northwestern corner of the current property. The original airport had been in existence since the 1950s.

The boundaries of the new airport encompass some 1,307 acres. Less than half of this total contains aviation facilities or is planned for future development. The southern and western parts of the property are set aside for wildlife and habitat preservation.

The airfield configuration consists of two runways arranged in a westward facing 'V' shape. The northwest/southeast-oriented primary runway is currently 4,500 feet long and is planned for ultimate extension southeastward to 6,000 feet. A straight-in nonprecision instrument approach procedure currently exists from the southeast and a precision approach is anticipated in the future. An extension also is planned for the shorter, northeast/southwest runway. This runway is frequently used because of the strong southwesterly winds common at the airport. Both runways are lighted for nighttime use. The Byron Airport Compatibility Map included in Chapter 4 reflects the proposed ultimate development of the airfield.

Exhibit 6A contains a summary of Byron Airport's current and planned features. A diagram of the airport layout is depicted in Exhibit 6B. The airport's Airspace Plan is included in Chapter 4 (Figure 4A).

GENERAL INFORMATION

- *Airport Ownership* — County of Contra Costa
- *Property Size*
  - Fee title: 1,307 acres
  - Avigation easements: 0 acres
- *Airport Classification* — General aviation
- *Airport Elevation* — 76 feet MSL
- *Access*
  - Byron Hwy (County Rte. J4) 1 mile northeast
  - Building area access via Byron Hot Springs and Armstrong roads, then Falcon Drive on airport

BUILDING AREA

- *Location* — Midfield, west side of Rwy 12-30
- *Aircraft Parking Capacity*
  - Hangar spaces: 66± (including portable units)
  - Tiedowns: 69± (based & transient)
- *Services*
  - Aviation gasoline (self service)
  - Skydiving instruction
  - Sailplane & ultralight activity (no services)
- *Other Major Facilities*
  - Over 60% of property set aside as wildlife preserve

RUNWAY/TAXIWAY DESIGN

Runway 12-30

- *Critical Aircraft* — Medium twin
- *Classification* — Airport Reference Code B-III (max. approach speed 121 kts; max. wingspan 118 ft.)
- *Dimensions* — 4,500 feet long, 100 feet wide
- *Pavement Strength* — 29,500 lbs single-wheel (aircraft main landing gear configuration)
- *Average Gradient* — 0.4% (rising to northwest)
- *Runway Lighting* — Medium-intensity edge lights
- *Visual Navigational Aids*
  - Rwy 12: None
  - Rwy 30: REIL; PAPI (3.5°)
- *Primary Taxiways* — Full-length parallel on southeast

Runway 5-23

- *Critical Aircraft* — Light twin
- *Classification* — Airport Reference Code B-II (max. approach speed 121 kts; max. wingspan 79 ft)
- *Dimensions* — 3,000 feet long, 75 feet wide
- *Pavement Strength* — 29,500 lbs single-wheel
- *Average Gradient* — 1.0% (rising to southwest)
- *Runway Lighting* — Medium-intensity edge lights
- *Visual Navigational Aids*
  - Rwy 5: None
  - Rwy 23: REIL; PAPI (3.5°)
- *Primary Taxiways* — Full-length parallel on northwest

APPROACH PROTECTION

- Runway Protection Zones
  - Runway 5: 1,000 feet long, all on airport property
  - Runway 23: 1,000 feet long, all on airport property
  - Runway 12: 1,700 feet long, all on airport property or county road right-of-way
  - Runway 30: 1,000 feet long, all on airport property
- *Approach Obstacles*
  - Runway 5: Rising terrain, numerous wind turbines, power line (beyond 1.0 mile from runway end)
  - Runway 23: None
  - Runway 12: Power line (1,000 ft. from runway end)
  - Runway 30: Hill (2,500 ft. from runway end)

TRAFFIC PATTERNS AND APPROACH PROCEDURES

- *Airplane Traffic Pattern*
  - Runways 5, 30: Right traffic
  - Runways 12, 23: Left traffic
  - Pattern altitude: 1,000 feet AGL
- *Instrument Approaches*
  - Runway 30 GPS (nonprecision)
    - straight-in (1-mi. visibility, 740-ft. min. descent ht.)
    - circling (1-mi. visibility, 804-ft. min. descent ht.)
- *Operational Restrictions* — None
- *Helicopter Traffic Pattern*
  - None formally defined
  - Informal flight training loops and landing spots at approach ends of Rwy 5 (primary spot) & Rwy 12

AIRPORT PLANNING DOCUMENTS

- *Airport Master Plan*
  - Adopted by Board of Supervisors, June 1986
  - Plan depicts layout proposed prior to construction
- *Airport Layout Plan*
  - Last updated November 1999

PROPOSED FACILITY IMPROVEMENTS

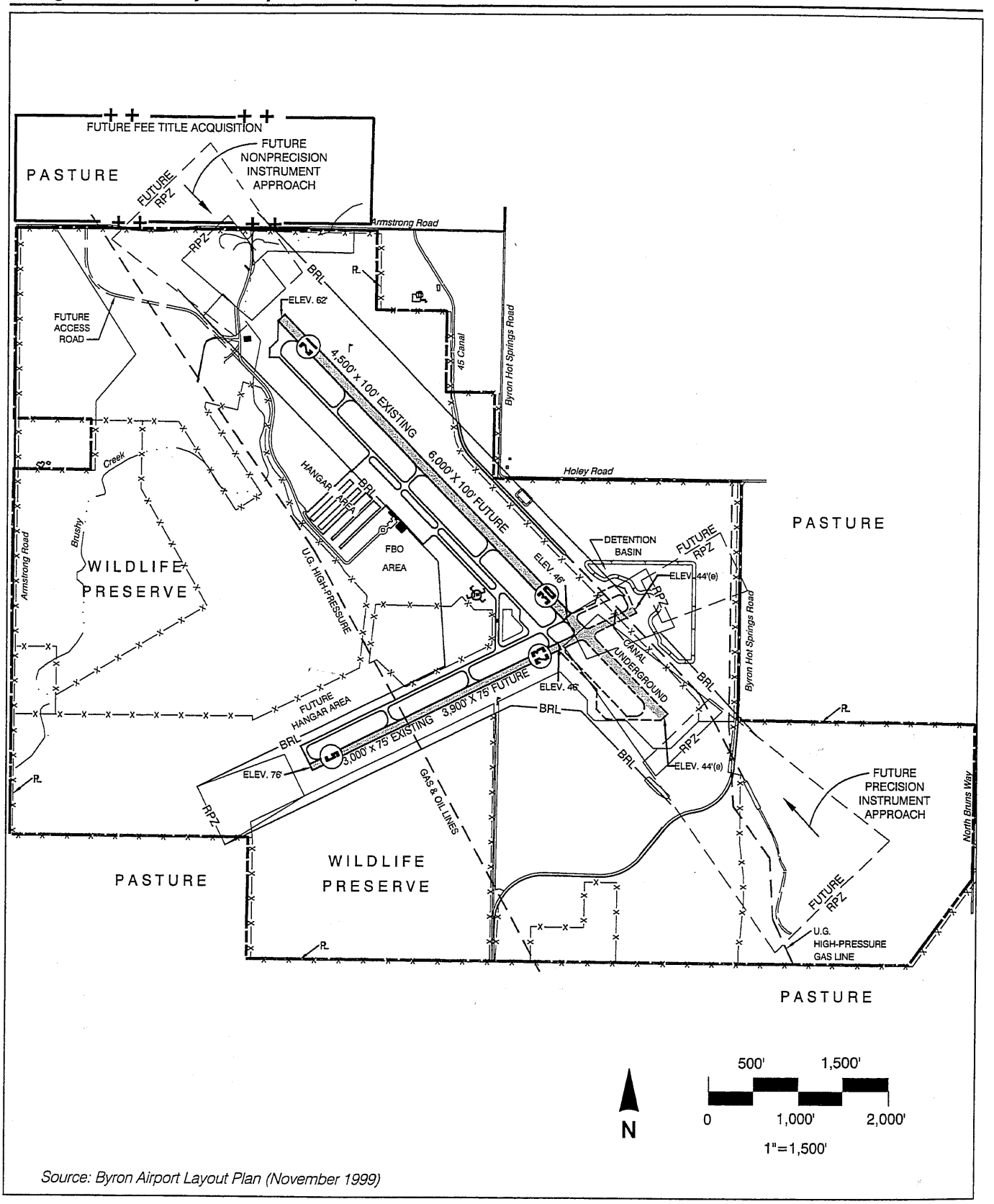
- *Airfield and Building Area*
  - Extend Rwy 12-30 1,500 ft. southeast (6,000 ft. total)
  - Extend Rwy 5-23 900 ft. northeast (3,900 ft. total)
  - Future Rwy 30 precision instrument approach
  - Future Rwy 12 nonprecision instrument approach
  - Add aircraft hangars & FBO facilities as needed
- *Approach Protection*
  - Acquire approach protection easements (1,720 ac.)

Source: Data Compiled by Shutt Moen Associates (April 2000)

Exhibit 6A

Airport Features Summary

Byron Airport



Source: Byron Airport Layout Plan (November 1999)

Exhibit 6B

Airport Layout Diagram

Byron Airport

AIRPORT ACTIVITY AND NOISE IMPACTS

Byron Airport functions both as the general aviation access point for eastern Contra Costa County and as an alternative for pilots who do not need the more extensive facilities and services found at Buchanan Field Airport to the west. A wide variety of flying activities including sky diving, sailplane flights, and ultralight aircraft operations take place at Byron. As of early 2000, the airport also is the base for two historic military aircraft. Although future urbanization of the east county area will undoubtedly lead to greater business use of Byron Airport, current planning envisions the airport's predominant role to remain as a location for personal and recreational flying.

Full build-out of the areas shown on the adopted Airport Layout Plan drawing for aircraft parking and related functions will allow approximately 380 aircraft to be based at the airport. With approximately 120 based aircraft at present, this capacity should be sufficient for many years.

Current aircraft operations data as summarized in Exhibit 6C are derived from Caltrans Aeronautics Program sample counts and information supplied by airport staff. An average of approximately 61,000 aircraft operations (takeoffs plus landings) are estimated to have taken place annually at the airport in the last several years. Some 15% of these operations are by helicopters, most of which are engaged in flight training. The historic military jets make about 200 operations per year. Noise impact contours resulting from this activity are depicted in Exhibit 6D

Projected future activity levels listed in Exhibit 6C assume that the ratio of airplane operations to based airplanes (omitting helicopter activity) will remain relatively constant. The 380-based-airplane capacity would therefore generate some 165,000 airplane operations annually. This total also is about the capacity of the airport's runway system, assuming minimal nighttime activity. If helicopter operations increase at a similar rate to that for airplanes, they will add 25,000 operations to this figure, bringing total activity to about 190,000 operations annually.

The historic military jets are by far the loudest aircraft regularly operating at Byron Airport. Even though they represent a small fraction of total operations, the 100 takeoffs and 100 landings per year by these aircraft can significantly affect the airport noise contours. Two future activity scenarios thus are presented in Exhibit 6C and in the associated noise contour drawings:

- *Scenario A* assumes that the historic military jets will continue operating about 200 times per year. The resulting airport noise contours are shown in Exhibit 6E.
- *Scenario B* assumes that these aircraft will not be part of the airport's future fleet mix. Exhibit 6F shows the noise contours for this scenario.

Except for the military jets, the two scenarios are identical. A comparison of the two sets of noise contours shows the effect of the jet departures toward the northwest and, to a lesser extent, their landings from the southeast. Elsewhere, the contours are unchanged between the two cases.

BASED AIRCRAFT

	Current [a] *(2000)*	*Future* [b] *Scenario A*	*Future* [b] *Scenario B*
Aircraft Type			
Piston, Single-Engine	109	320	320
Piston, Multi-Engine	8	25	25
Turboprop	1	15	15
Business & Historic Jet	2	10	8
Helicopters	0	10	10
Total	120	380	378

AIRCRAFT OPERATIONS

	Current [c] *(1999)*	*Future* [d] *Scenario A*	*Future* [d] *Scenario B*
Total			
Annual	61,000	190,200	190,000
Average Day	167	521	520
Annual Operations by Aircraft Type			
Piston, Single-Engine			
Fixed	32,900	103,600	103,600
Variable Pitch Prop	14,000	44,400	44,400
Piston, Multi-Engine	3,600	12,000	12,000
Turboprop	200	3,000	3,000
Business Jet			
Turbofan, Small	500	2,000	2,000
Historic Military Jet	200	200	0
Helicopter	9,100	25,000	25,000
Touch-and-Go Percentage by Aircraft Type			
Piston, Single-Engine			
Fixed Pitch Prop	65%	65%	65%
Variable Pitch Prop	25%	25%	25%
Piston, Multi-Engine	0%	0%	0%
Helicopter	50%	50%	50%

TIME OF DAY DISTRIBUTION [e]

	Day (7 a.m. to 7 p.m.)	*Evening (7 p.m. to 10 p.m.)*	*Night (10 p.m. to 7 a.m.)*
Current and Future			
Takeoffs			
Piston, Single-Engine	92%	6%	2%
Piston Twin-Engine/Turboprop	94%	5%	1%
Business Jet	94%	5%	1%
Helicopters	95%	5%	0%
Landings			
Piston, Single-Engine	92%	6%	2%
Piston Twin-Engine/Turboprop	94%	5%	1%
Business Jet	94%	5%	1%
Helicopters	95%	5%	0%
Touch-and-Goes			
Piston, Single- & Twin-Engine	92%	6%	2%
Helicopters	95%	5%	0%

Exhibit 6C

Airport Activity Data

Byron Airport

RUNWAY USE DISTRIBUTION [e]

	Takeoffs	*Landings*
Day and Evening — Current and Future		
Piston, Single		
Runway 5	<0.1%	3.0%
Runway 23	27.0%	50.0%
Runway 12	8.0%	5.0%
Runway 30	65.0%	42.0%
Piston, Twin-Engine		
Runway 5	0.7%	7.0%
Runway 23	21.0%	25.0%
Runway 12	8.8%	2.5%
Runway 30	69.5%	65.5%
Business Jet		
Runway 5	0.4%	1.0%
Runway 23	15.0%	20.0%
Runway 12	9.6%	10.0%
Runway 30	75.0%	69.0%
Helicopter		
Runway 5 (end of rwy)	90.%	90.0%
Runway 23	0.0%	0.0%
Runway 12(end of rwy)	10.0%	10.0%
Runway 30	0.0%	0.0%
Night — Current and Future		
Piston, Single		
Runway 5	1.0%	1.0%
Runway 23	40.0%	40.0%
Runway 12	10.0%	10.0%
Runway 30	49.0%	49.0%
Piston, Twin-Engine		
Runway 5	0.8%	0.8%
Runway 23	35.0%	35.0%
Runway 12	12.5%	12.5%
Runway 30	51.7%	51.7%
Business Jet		
Runway 5	0.8%	0.5%
Runway 23	30.0%	30.0%
Runway 12	15.0%	15.0%
Runway 30	54.5%	54.5%
Helicopter		
Runway 5 (end of rwy)	90.0%	90.0%
Runway 23	0.0%	0.0%
Runway 12 (end of rwy)	10.0%	10.0%
Runway 30	0.0%	0.0%

Notes

[a] Source: Airport management data as of April 2000
[b] Source: Shutt Moen Associates estimates based upon aircraft parking capacity shown on *Airport Layout Plan*
[c] Source: Shutt Moen Associates and airport management estimates based upon Caltrans sample activity counts
[d] Source: Shutt Moen Associates projections
[e] Source: Shutt Moen Associates and airport management estimates

Source: Data compiled by Shutt Moen Associates (April 2000)

Exhibit 6C, continued

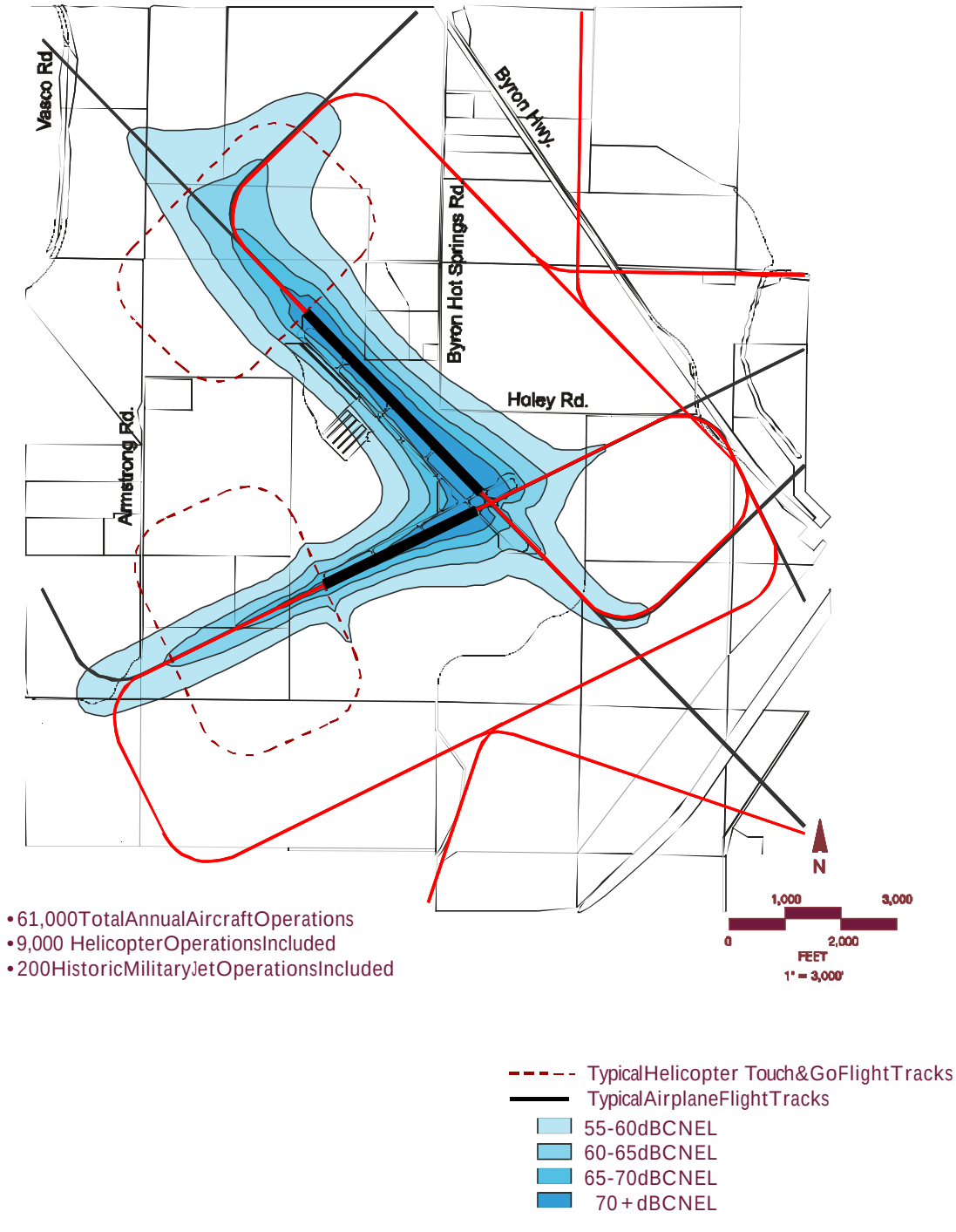
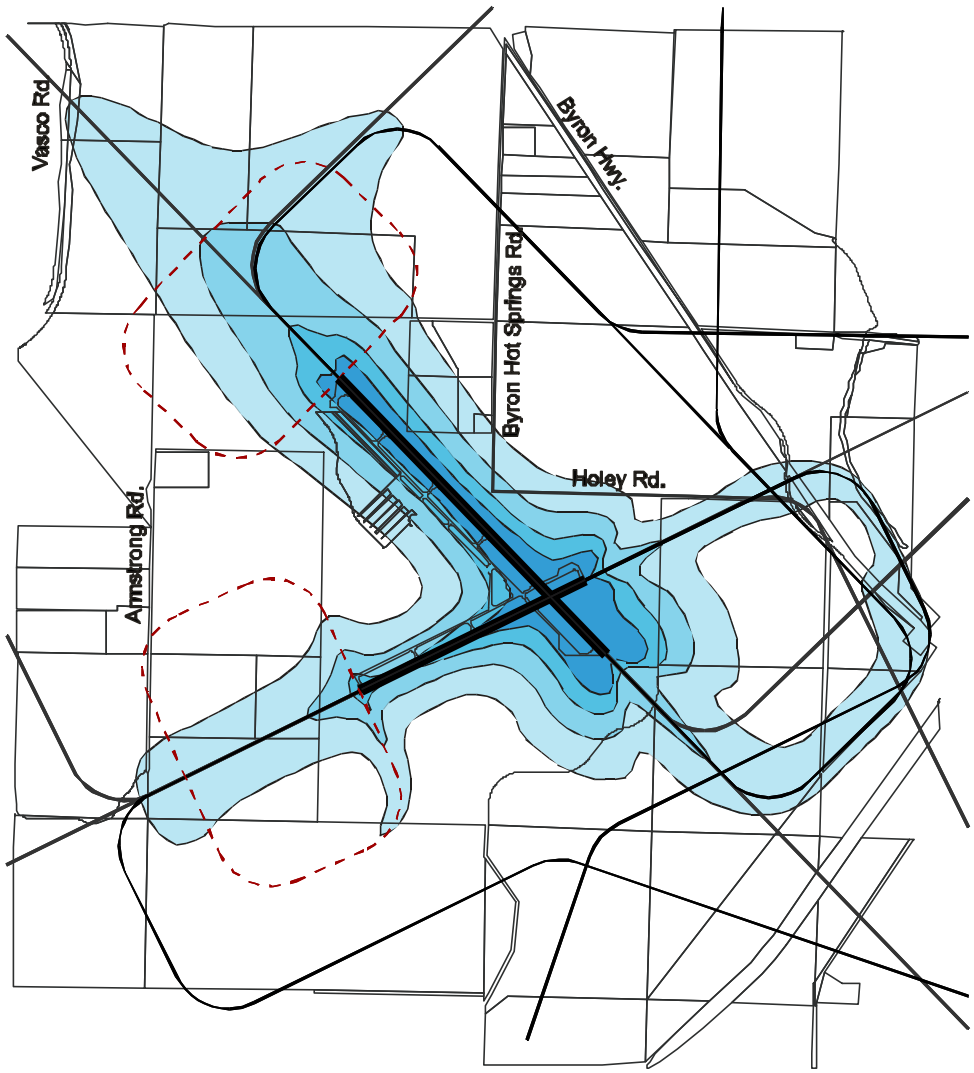


Exhibit 6D

Current Noise Contours

Total Activity

Byron Airport



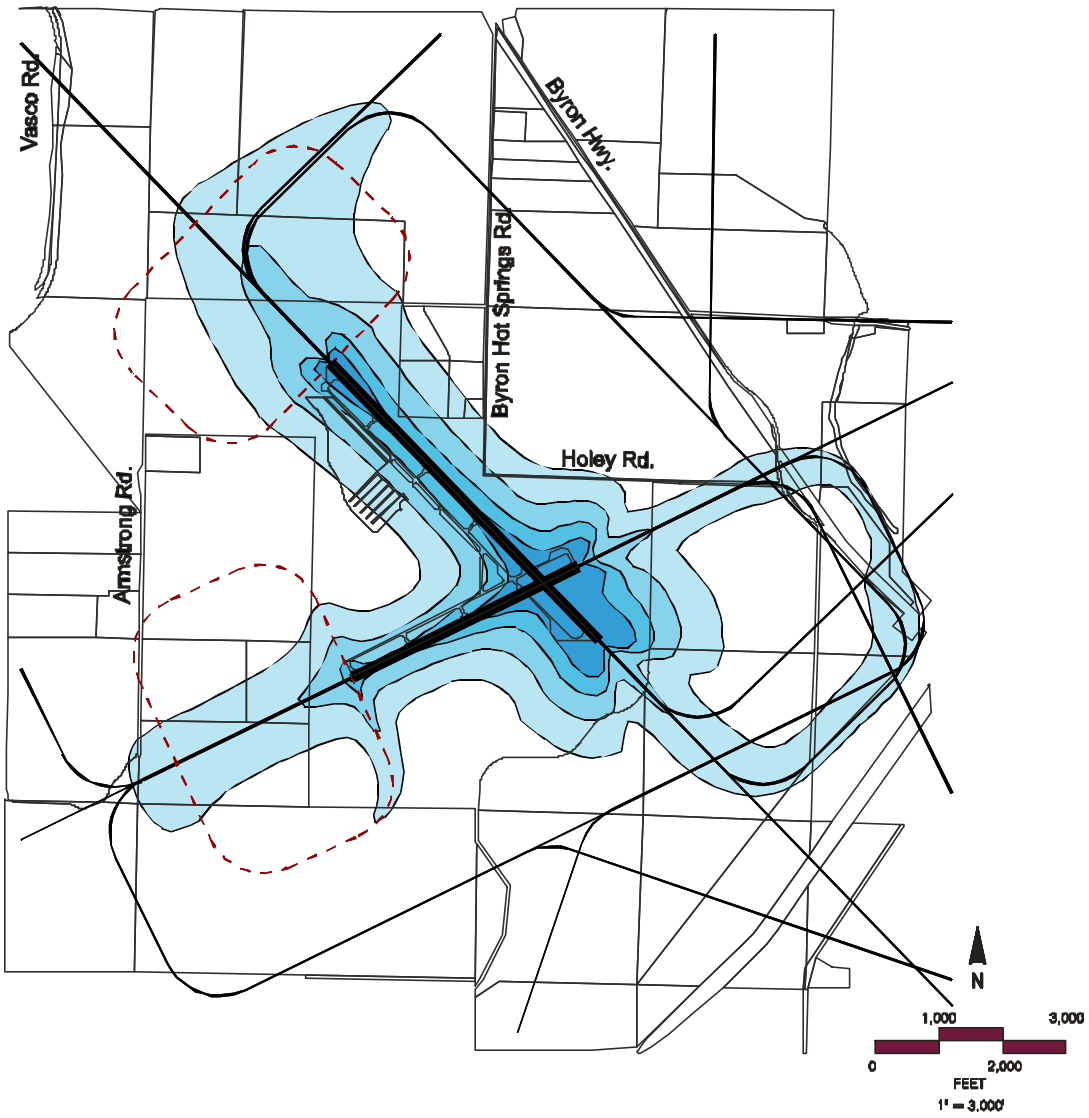
ActivityAssumptions
- 160,200 Total AnnualAircraftOperations
- 20,000Helicopter OperationsIncluded
- 200HistoricMilitaryJetOperationsIncluded

Note:
- Futureoperations projection representstheactivitylevelassociatedwith planned capacityof380basedaircraft.

TypicalHelicopter Touch&GoFlightTracks
TypicalAirplaneFlightTracks
55-60dBCNEL
60-65dBCNEL
65-70dBCNEL
70+dBCNEL

Exhibit 6E

Projected Noise Contours
with Historic Aircraft
ByronAirport



- 160,000 Total Annual Aircraft Operations
- 20,000 Helicopter Operations Included

Typical Helicopter Touch & Go Flight Tracks
Typical Airplane Flight Tracks

55-60 dB CNEL
60-65 dB CNEL
65-70 dB CNEL
70 + dB CNEL

Note: Future operations projection represents the activity level associated with planned capacity of 380 based aircraft.

Source: Shutt Moen Associates (April 2000)

Exhibit 6 F

Projected Noise Contours
without Historic Aircraft
Byron Airport

AIRPORT ENVIRONS

Byron Airport is situated in the rural, agricultural lands of southeastern Contra Costa County. Except for the small town of Byron, 2 miles to the north, population within 5 miles of the airport is widely scattered. The area is not without major development, however. Clifton Court Forebay and other elements of the State Water Project plus the county's Los Vaqueros Reservoir are both located nearby. Additionally, numerous wind turbine machines line the hills from the Altamont Pass to within a mile west of the airport.

Urban development is on the horizon as well. The recreational community of Discovery Bay is just 5 miles northeast and about the same distance to the north is the rapidly growing city of Brentwood. Furthermore, the San Joaquin County new town of Mountain House is under development only some 4 miles southeast.

Contra Costa County's adopted general plan shows the airport environs as remaining agricultural. However, the Byron Municipal Advisory Council — an advisory body to the county Board of Supervisors — has drafted a land use plan, the *Byron Township General Plan, 1999-2020*, which envisions light industrial and business park uses near the airport and extensive new residential development extending a mile south and several miles east of Byron. The county has taken no official action on the council's plan as of yet and, if changes are eventually made to the general plan, the expectation is that they will be incremental ones. Nevertheless, in an effort to avoid future land use compatibility conflicts, close coordination was maintained during the drafting of both the Byron land use plan and the ALUC's *Compatibility Plan* and various changes were made to early versions of both plans.

A brief description of existing and planned land uses near Byron Airport is provided in Exhibit 6G. Exhibit 6H depicts a simplified mapping of the adopted land use plans of the three counties having jurisdiction over portions of the airport vicinity. The Byron Municipal Advisory Council plan is illustrated in Exhibit 6I.

AIRPORT LOCATION AND NEARBY TOPOGRAPHY

- *Location*
  - Southeastern Contra Costa County; 2 miles south of town of Byron
  - Los Vaqueros Reservoir 5 miles west
  - Clifton Court Forebay (part of State Water Project) 1.3 miles east
- *Topography*
  - Airport site in gently rolling hills adjacent to San Joaquin River delta
  - Airport Elevation: 76 feet above sea level
  - Hills of Diablo range rise 1.0 mile west
  - Mount Diablo, 15 miles northwest, elev. 3,849 ft.

EXISTING AIRPORT AREA LAND USES

- *General Character*
  - Sparsely populated grazing land
- *Runway Approaches*
  - Southwest (Rwy 5): dry pasture; wind turbines (1.0 mile); high-voltage power line (1.4 miles)
  - Northwest (Rwy 12): dry pasture
  - Northeast (Rwy 23): crop lands; high-voltage power line (1.2 miles); Clifton Court Forebay (1.7 miles)
  - Southeast (Rwy 30): dry pasture; aqueduct (1.2 mi.)
- *Traffic Patterns*
  - Northeast: crop lands; Byron Hot Springs resort (0.7 mi. north); Byron Hwy (1.0 mi. northeast)
  - Southeast: dry pasture; Delta Pumping Station (1.7 miles south of airport)

COMMUNITY LAND USE PLANNING

County of Contra Costa

- *Area of Land Use Jurisdiction*
  - Airport and immediate environs all unincorporated
- *Adopted Community Plans*
  - *Contra Costa County General Plan, 1995-2010* — Adopted July 1996
- *Planned Airport Area Land Uses*
  - Agricultural and open space uses, except in town of Byron and airport property
- *Established Airport Compatibility Measures*

  Contra Costa County General Plan policies include:
  - "Protect Byron Airport environs from urban encroachment through a combination of land acquisition, easement acquisition, and land use regulations"
  - "The County shall acquire fee title and/or development rights easements to an appropriate amount of buffer land" around the airport so as to "ensure that incompatible land uses will not be allowed to locate within the safety zone"
  - "Establishment of commercial, industrial or residential development around the ... airport shall not be allowed; ... water and sewer services to the airport will be limited to serve only the airport properties; utilities will not serve growth on adjacent properties"
  - "No residential development or sensitive receptors (e.g., hospitals, schools, etc.) shall be allowed within the projected 60 CNEL contour of the airport"

County of Alameda

- *Area of Land Use Jurisdiction*
  - County line 1.5 miles south of airport
- *Adopted Community Plans*
  - *East County Area Plan* — Adopted May 1994
- *Planned Airport Area Land Uses*
  - Northeast corner of county to remain agricultural with very large minimum parcel sizes
- *Established Airport Compatibility Measures*
  - *East County Area Plan* says that county "shall delineate boundaries of the Byron Airport referral areas on Alameda County land use and zoning maps to identify areas that are subject to airport compatibility review"

Byron Municipal Advisory Council

- *Area of Land Use Jurisdiction*
  - Southeastern Contra Costa County (in advisory capacity to county Board of Supervisors)
- *Adopted Community Plans*
  - *Byron Township General Plan, 1999-2020* — Plan's purpose is to give direction to county decision makers; it has no official status
- *Planned Airport Area Land Uses*
  - Light industrial and office uses close to airport
  - Future residential on south edge of Byron, extending several miles east; highest densities closest to Byron Hwy
- *Established Airport Compatibility Measures*
  - Airport compatibility is key objective of plan; intent is to establish mutually beneficial relationship between airport and future development of area

County of San Joaquin

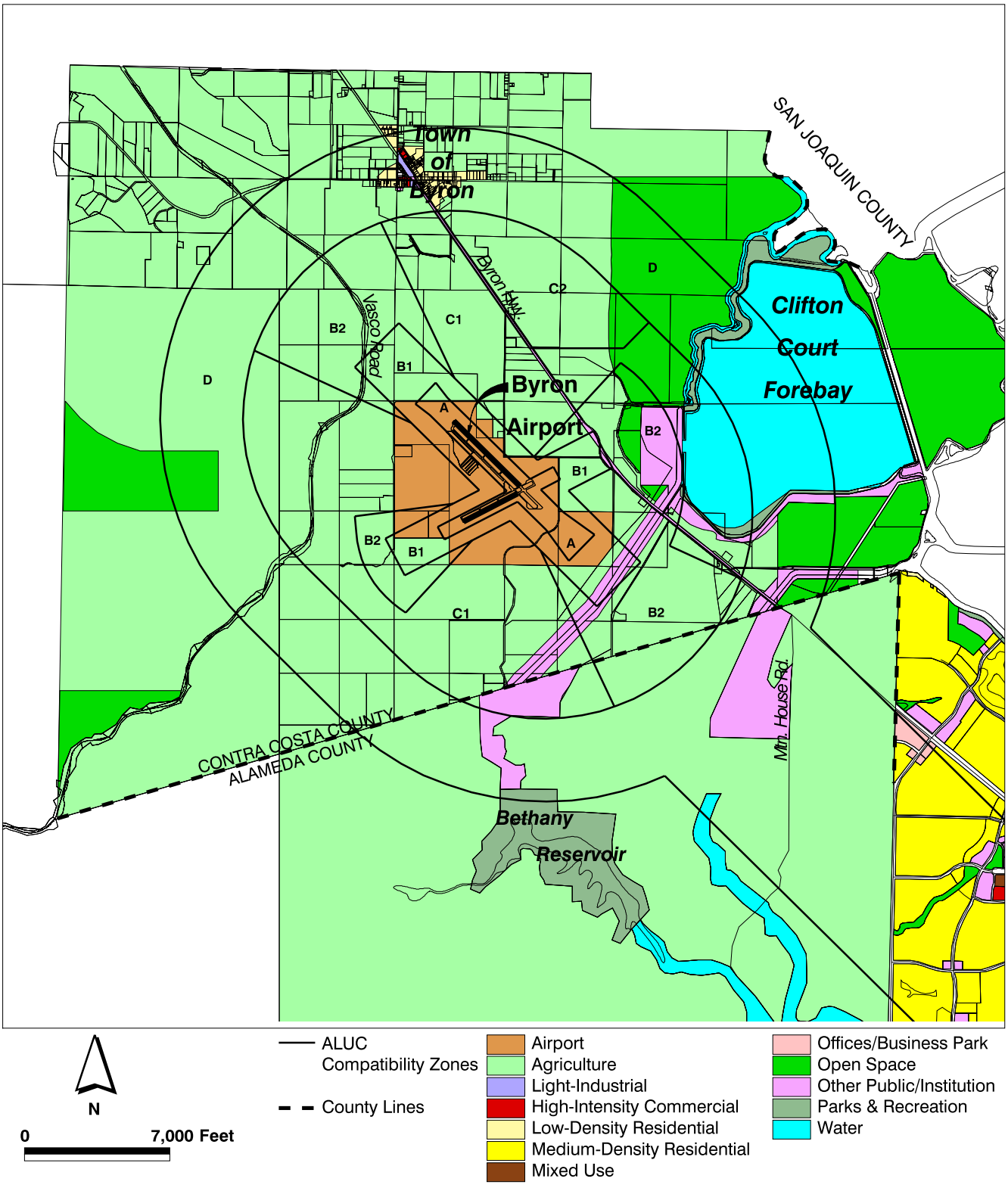
- *Area of Land Use Jurisdiction*
  - County line 3.5 miles east of airport
- *Adopted Community Plans*
  - *Mountain House New Community Master Plan* — Originally adopted by county board of supervisors, November 1994; last amended May 1998
- *Planned Airport Area Land Uses*
  - New town of Mountain House under development
- *Established Airport Compatibility Measures*
  - *Mountain House Master Plan* states that deed notices will disclose potential for aircraft noise impact on residential property in community [however, area of impact depicted in plan does not match runway alignment as built]

Source: Data Compiled by Shutt Moen Associates (December 2000)

Exhibit 6G

Airport Environs Summary

Byron Airport

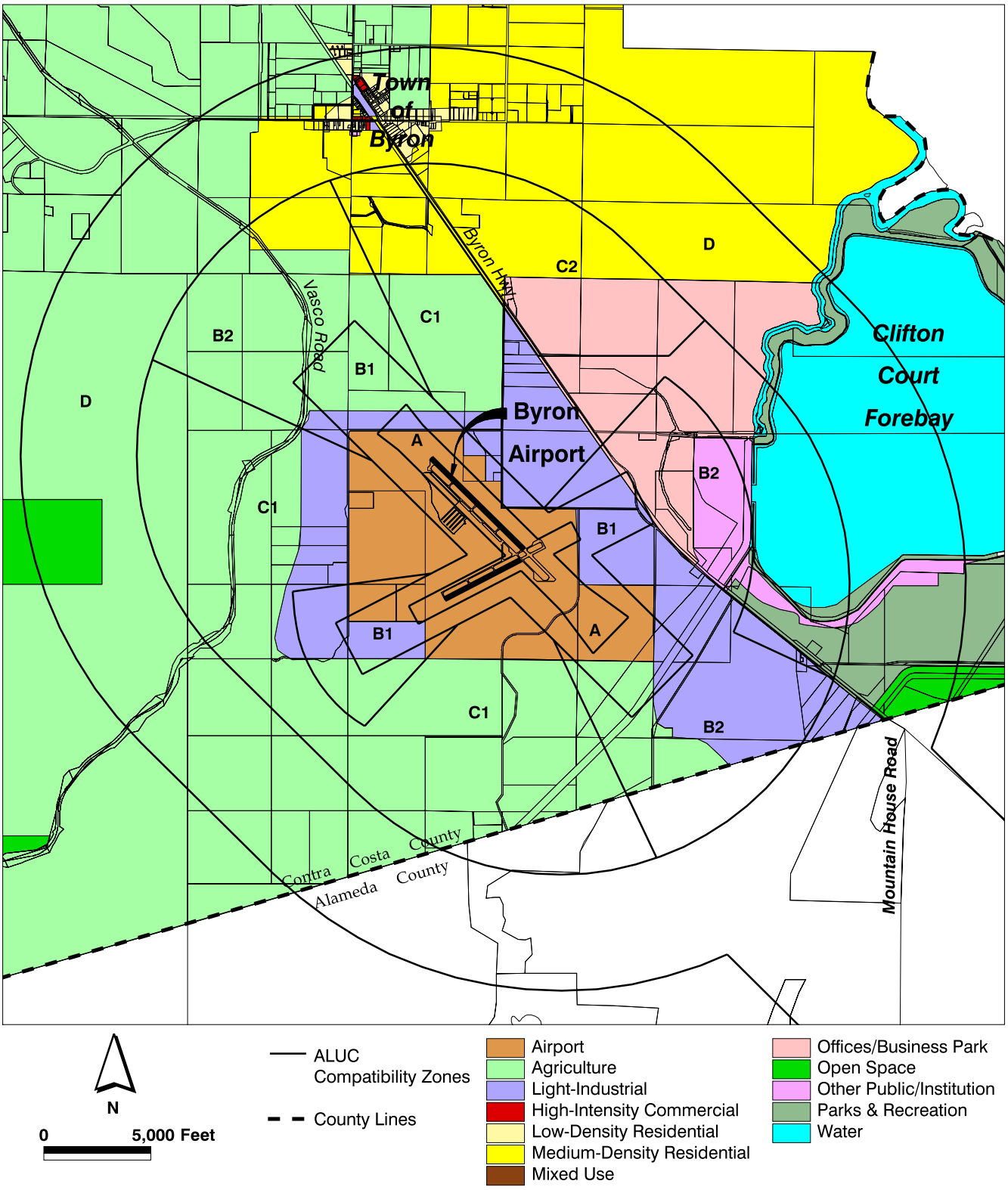


Source: Simplified land use designations compiled by Shutt Moen Associates based upon community general plans as of June 1998

Exhibit 6H

Simplified Existing General Plan Land Use Designations

Byron Airport Environs



Source: Compiled by Shutt Moen Associates from general plan amendment proposed by Byron Municipal Advisory Council (April 2000)

Exhibit 6I

Proposed Byron Area Land Use Plan

Byron Municipal Advisory Council